

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): An isolated compound which inhibits pilus assembly, said compound comprising a mimic of a chaperone G<sub>1</sub> beta-strand or a mimic of an amino terminal motif of a pilus subunit, wherein the mimic is with at least two alternating hydrophobic amino acid residues, or a 10 to 20 residue peptide according to formula (I):

(I) Z<sub>1</sub>-Z<sub>2</sub>-X<sub>1</sub>-X<sub>2</sub>-X<sub>3</sub>-X<sub>4</sub>-X<sub>5</sub>-X<sub>6</sub>-X<sub>7</sub>-X<sub>8</sub>-X<sub>9</sub>-X<sub>10</sub>-Z<sub>3</sub>-Z<sub>4</sub>

or a pharmaceutically-acceptable salt thereof, wherein:

Z<sub>1</sub> is R-C(O)-NR- or RRN-;

Z<sub>2</sub> is an optional 1 to 5 residue peptide or peptide analog, 1 to 5 residue peptide analog, or 1 to 5 residues consisting of both peptide and peptide analog residues;

X<sub>1</sub> is any amino acid residue;

X<sub>2</sub> is any amino acid residue;

X<sub>3</sub> is a hydrophobic residue or a hydroxyl-substituted aliphatic residue;

X<sub>4</sub> is any amino acid residue;

X<sub>5</sub> is a hydrophobic residue or Gly;

X<sub>6</sub> is a hydrophobic or a hydrophilic residue;

X<sub>7</sub> is Gly, an amide-substituted polar residue or a hydrophobic residue;

X<sub>8</sub> is any an amino acid residue other than an aliphatic residue;

X<sub>9</sub> is an aliphatic residue;

X<sub>10</sub> is any amino acid residue;

Z<sub>3</sub> is an optional 1 to 5 residue peptide or peptide analog, 1 to 5 residue peptide analog, or 1 to 5 residues consisting of both peptide and peptide analog residues;

Z<sub>4</sub> is -C(O)OR or -C(O)NRR;

each R is independently hydrogen, (C<sub>1</sub>-C<sub>6</sub>) alkyl, (C<sub>2</sub>-C<sub>6</sub>) alkenyl, (C<sub>2</sub>-C<sub>6</sub>) alkynyl or (C<sub>6</sub>-C<sub>14</sub>) aryl;

each "—" between residues X<sub>1</sub> through X<sub>10</sub>, Z<sub>2</sub> and X<sub>1</sub> and X<sub>10</sub> and Z<sub>3</sub> independently represents an amide linkage, a substituted amide linkage or an isostere of an amide linkage; and

each "~" represents a bond.

Claim 2 (original): The compound of claim 1 wherein the compound is a peptide.

Claim 3 (cancelled)

Claim 4 (currently amended): The compound of claim 1 wherein the compound mimic comprises a mimic of a chaperone G<sub>1</sub> beta-strand with at least two alternating hydrophobic amino acid residues which exhibits antibacterial activity against a Gram-negative bacterium.

Claim 5 (currently amended): The compound of claim 4 wherein said mimic further comprises the amino acid sequence NVLQIAL (SEQ ID NO: 1) SEQ ID NO: 1 or an analogue thereof.

Claim 6 (cancelled)

Claim 7 (cancelled)

Claim 8 (currently amended): The compound of claim 1 wherein the compound mimic comprises a mimic of an amino terminal motif of a pilus subunit selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28 and SEQ ID NO: 29.

Claim 9 (currently amended): The compound of claim 8 wherein said mimic of an amino-terminal motif of a pilus subunit further comprises the amino acid sequence SDVAFRGNLL (SEQ ID NO: 12) or an analogue thereof.

Claim 10 (cancelled)

Claim 11 (cancelled):

Claim 12 (cancelled)

Claim 13 (currently amended): The compound of claim 1 12 wherein said compound further comprises one or more features selected from the group consisting of wherein one or more of the following conditions are satisfied:

each "—" between residues X<sub>1</sub> through X<sub>10</sub>, Z<sub>2</sub> and X<sub>1</sub> and X<sub>10</sub> and Z<sub>3</sub> is an amide linkage;

Z<sub>1</sub> is H<sub>2</sub>N-;

Z<sub>4</sub> is -C(O)OH or a salt thereof;

optional Z<sub>2</sub> is not present;

optional Z<sub>3</sub> is not present;

X<sub>1</sub> is an amino acid residue other than a basic residue;

X<sub>2</sub> is an amino acid residue other than an aliphatic residue;

X<sub>3</sub> is an aliphatic residue or T;

X<sub>4</sub> is an amino acid residue other than an acidic residue;

X<sub>5</sub> is an aliphatic residue, F or G;

X<sub>7</sub> is G, N or A; or

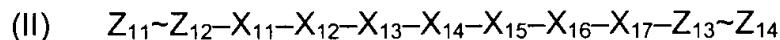
~~X<sub>8</sub> is other than an aliphatic residue; and~~

X<sub>10</sub> is an aliphatic or a polar residue.

Claim 14 (currently amended): The compound of claim 13 ~~which is wherein the mimic comprises a sequence~~ selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28 and SEQ ID NO: 29.

Claim 15 (cancelled):

Claim 16 (currently amended): ~~An isolated compound which inhibits pilus assembly, the compound comprising a mimic of a chaperone G<sub>1</sub> beta-strand or a mimic of an amino terminal motif of a pilus subunit, wherein the mimic The antibacterial compound of claim 1 which~~ is a 7 to 17 residue peptide or peptide analog according to formula (II):



or a pharmaceutically-acceptable salt thereof, wherein:

Z<sub>11</sub> is R'-C(O)-NR'- or R'R'N-;

Z<sub>12</sub> is an optional 1 to 5 residue peptide ~~or peptide analog, 1 to 5 residue peptide analog, or 1 to 5 residues consisting of both peptide and peptide analog residues;~~

X<sub>11</sub> is any amino acid residue;  
X<sub>12</sub> is any amino acid residue;  
X<sub>13</sub> is a hydrophobic residue;  
X<sub>14</sub> is any amino acid residue;  
X<sub>15</sub> is a hydrophobic residue;  
X<sub>16</sub> is any amino acid residue;  
X<sub>17</sub> is hydrophobic residue or a hydroxyl-substituted aliphatic residue;  
Z<sub>13</sub> is an optional 1 to 5 residue peptide or peptide analog, 1 to 5  
residue peptide analog, or 1 to 5 residues consisting of both peptide and  
peptide analog residues;

Z<sub>14</sub> is -C(O)OR' or -C(O)NR'R';  
each R' is independently hydrogen, (C<sub>1</sub>-C<sub>6</sub>) alkyl, (C<sub>2</sub>-C<sub>6</sub>) alkenyl, (C<sub>2</sub>-C<sub>6</sub>) alkynyl or (C<sub>6</sub>-C<sub>14</sub>) aryl; and  
each "—" between residues X<sub>11</sub> through X<sub>17</sub>, Z<sub>12</sub> and X<sub>11</sub> and X<sub>17</sub> and Z<sub>13</sub> independently represents an amide linkage, a substituted amide linkage or an isostere of an amide linkage; and each "~" independently represents a bond.

Claim 17 (original): The compound of claim 16 ~~wherein said compound further comprises one or more features selected from the group consisting of wherein one or more of the following conditions are satisfied:~~

each "—" between residues X<sub>11</sub> through X<sub>17</sub>, Z<sub>12</sub> and X<sub>11</sub> and X<sub>17</sub> and Z<sub>13</sub> is an amide linkage;  
Z<sub>11</sub> is H<sub>2</sub>N-;  
Z<sub>14</sub> is -C(O)OH or a salt thereof;  
optional Z<sub>12</sub> is not present;  
optional Z<sub>13</sub> is not present;  
X<sub>11</sub> is an amino acid residue other than a basic residue;  
X<sub>13</sub> is an aliphatic residue or M;

X<sub>14</sub> is an amino acid residue other than an aromatic residue;

X<sub>15</sub> is an aliphatic residue, F or M; and

X<sub>17</sub> is an aliphatic residue, F, M or a hydroxyl-substituted aliphatic residue.

Claim 18 (cancelled)

Claim 19 (currently amended): The compound of any one of claims 1, 2, 5, 8, 9, 13, 14, 16, or 17 ~~claim 16~~ wherein said compound exhibits antibacterial activity against one or more ~~a~~ Gram-negative bacterium selected from the group consisting of comprising *E. coli, H. influenzae, S. enteriditis, S. typhimurium, B. pertussis, Y. pestis, Y. entarocolitica, H. pylori and K. pneumoniae*.

Claims 20-135 (cancelled)

Claim 136 (currently amended): An isolated compound which inhibits pilus assembly, the compound consisting of SEQ ID NO: 12. ~~The compound of claim 1 wherein the compound consists of SEQ ID NO:12.~~

Claim 137 (new): An isolated compound which inhibits pilus assembly, the compound consisting essentially of SEQ ID NO: 12, wherein the compound is a mimic of a chaperone G<sub>1</sub> beta-strand or a mimic of an amino terminal motif of a pilus subunit.

Claim 138 (new): An isolated compound which inhibits pilus assembly, the compound comprising a mimic of a chaperone G1 beta-strand or a mimic of an amino terminal motif of a pilus subunit, wherein the mimic comprises SEQ ID NO:12.

Claim 139 (new): The compound of claim 138 wherein the compound competitively binds to a pilus subunit hydrophobic groove.

Claim 140 (new): A complex comprising a pilus subunit with a hydrophobic groove and a synthetic compound bound thereto; the synthetic compound competitively binding the hydrophobic groove and inhibiting pilus assembly; the synthetic compound comprising a mimic of a chaperone G1 beta-strand or a mimic of an amino terminal motif of a pilus subunit; the mimic comprising at least two independently selected hydrophobic amino acid residues; and the hydrophobic amino acid residues separated by at least one interposing independently selected amino acid; wherein the hydrophobic amino acid residues facilitate binding with the hydrophobic groove of the pilus subunit.

Claim 141 (new): The complex of claim 140 wherein the synthetic compound is any one compound of claims 1, 2, 4, 5, 8, 9, 13, 14, 16, 17, 19, or 136-139.

Claim 142 (new): The complex of claim 140 wherein the mimic comprises at least three independently selected hydrophobic amino acid residues, the hydrophobic amino acid residues separated by at least one interposing independently selected amino acid.

Claim 143 (new): The complex of claim 140 wherein the mimic comprises at least four independently selected hydrophobic amino acid residues, the hydrophobic amino acid residues separated by at least one interposing independently selected amino acid.

Claim 144 (new): The complex of claim 140 wherein the mimic comprises at least five independently selected hydrophobic amino acid residues, the hydrophobic amino acid residues separated by at least one interposing independently selected amino acid.

Claim 145 (new): The complex of claim 140 wherein at least one interposing amino acid residue is an interposing hydrophobic amino acid residue.

Claim 146 (new): The complex of claim 145 with at least two interposing hydrophobic amino acid residues.

Claim 147 (new): The complex of claim 140 wherein the mimic comprises at least five consecutive hydrophobic amino acid residues.

Claim 148 (new): The complex of claim 140 wherein the mimic comprises a core sequence derived from a chaperone G<sub>1</sub> beta-strand or an amino terminal motif of a pilus subunit, the core sequence comprising about 3 to about 12 residues.

Claim 149 (new): The complex of claim 148 wherein the core sequence comprises about 4 to about 9 residues.

Claim 150 (new): The complex of claim 148 wherein the core sequence comprises about 7 residues.

Claim 151 (new): The complex of claim 148 wherein the core sequence is at least about 90% identical to a sequence from a chaperone G<sub>1</sub> beta-strand or an amino terminal motif of a pilus subunit.

Claim 152 (new): The complex of claim 148 wherein the core sequence is at least about 80% identical to a sequence from a chaperone G<sub>1</sub> beta-strand or an amino terminal motif of a pilus subunit.

Claim 153 (new): The complex of claim 148 wherein the core sequence is at least about 70% identical to a sequence from a chaperone G<sub>1</sub> beta-strand or an amino terminal motif of a pilus subunit.

Claim 154 (new): The complex of claim 140 wherein the compound exhibits antibacterial activity against a Gram-negative bacterium.

Claim 155 (new): The complex of claim 140 wherein the mimic comprises SEQ ID NO: 1 or an analog thereof.

Claim 156 (new): The complex of claim 140 wherein the mimic comprises SEQ ID NO: 12 or an analog thereof.

Claim 157 (new): The complex of claim 140 wherein the mimic comprises a sequence at least about 80% identical to a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28 and SEQ ID NO: 29.

Claim 158 (new): The complex of any one of claims 140, 142-157 wherein the compound exhibits antibacterial activity against one or more Gram-negative bacterium selected from the group consisting of *Escherichia coli*, *Haemophilus influenzae*, *Salmonella enteriditis*, *Salmonella typhimurium*, *Bordetella pertussis*, *Yersinia pestis*, *Yersinia enterocolitica*, *Helicobacter pylori* and *Klebsiella pneumoniae*.